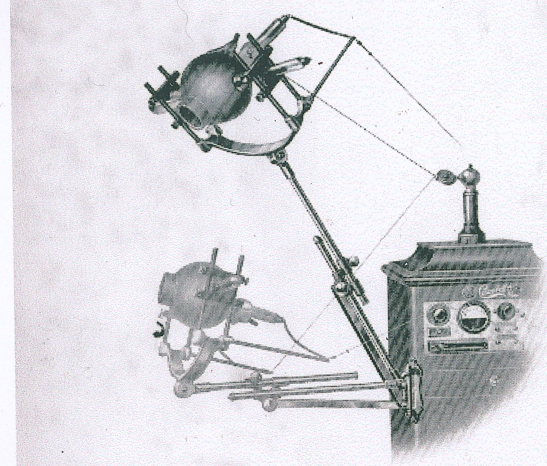
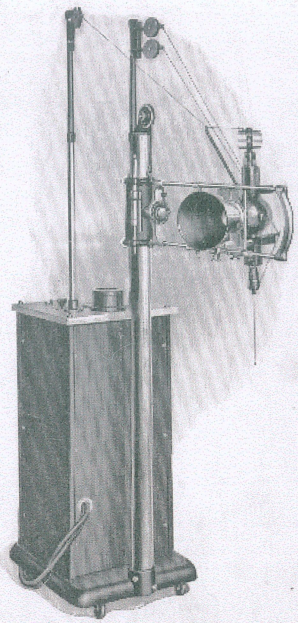


Campbell Dental Bracket Tube Holder

Cat. No. 2006

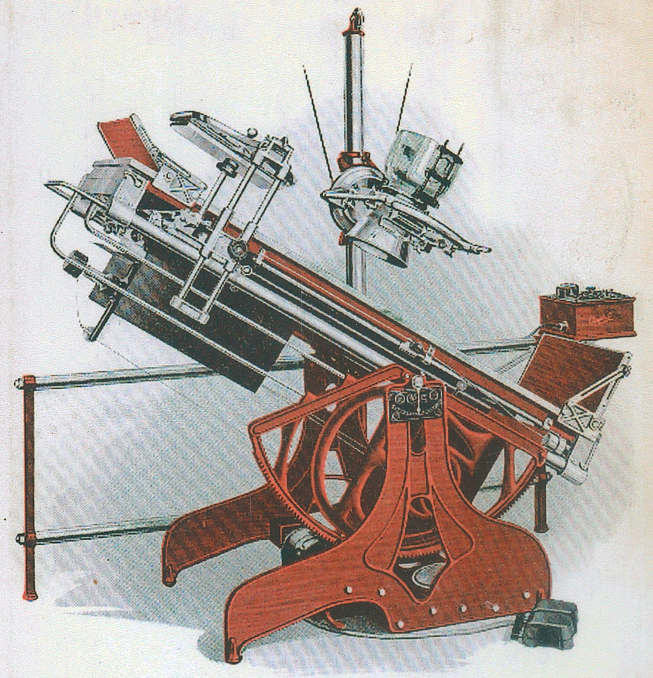


CAMPBELL CLINICAL X-RAY UNIT

U. S. Patents
December 19, 1911; April 22, 1913; August 7, 1917.
Other Patents Pending.

Cat. No. 2084

Clinix



Campbell "Clinix" X-ray Plant

Tube Tilt Table. Motor Driven. Transformer attached to under side of table.
Also furnished with Transformer mounted on top of Tube Stand.
Both High Tension Transformers operated by the one Auto Transformer Control Case.
1 to 30 Milliamperes, 2 to 8 inch Spark Gap.

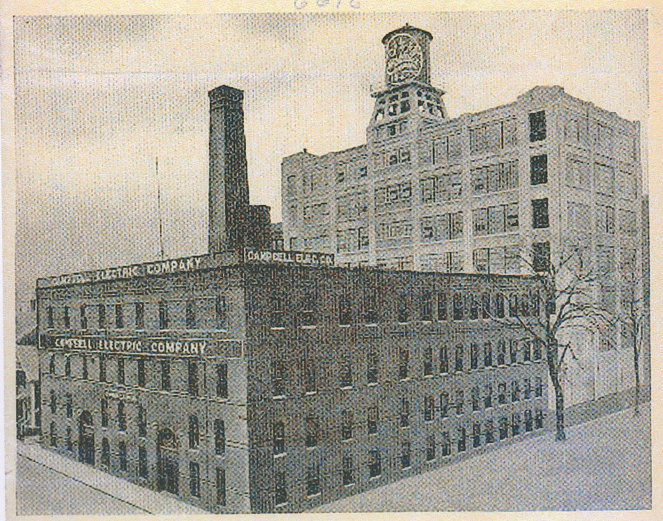
U. S. Patents
December 19, 1911; April 22, 1913; February 29, 1916;
August 7, 1917. Foreign Patents.
Other Patents Pending.

Cat. No. 2087

Campbell
ELECTRIC CO.
LYNN, MASS

PRICES IN EFFECT APRIL 1, 1920

Which supersede prices listed in all catalogues
issued to date and made necessary to
PRESERVE QUALITY

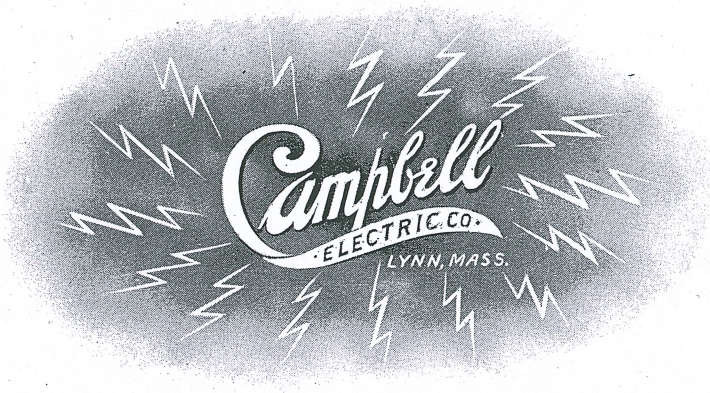


"The Plant That Serves You"

CAMPBELL ELECTRIC COMPANY
LYNN, MASSACHUSETTS

Model "E" Coil

3797



X-Ray and High Frequency
Apparatus

Campbell Electric Co.
Lynn, Massachusetts, U. S. A.

gap. The switches are of positive snap contact, equipped with ball bearings, move clockwise from left to right, are mounted on a specially insulated base of which we have exclusive control and are pro-

High Frequency

varies in volume and frequency from a vacuum electrode current of such mildness and rapidity of alternation that the only sensation produced by it is that of grateful

Campbell Electric Co. Lynn, Mass.

THE CAMPBELL X-RAY AND HIGH FREQUENCY APPARATUS. MODEL "E"

A Coil is a Necessity to the General Practitioner

It is no longer necessary to spend time convincing the general practitioner that some form of electrical apparatus is as essential to his office equipment as the automobile is to his practice outside the office. It only remains to point out the special requirements of the apparatus best suited to his needs which with the minimum outlay will produce the maximum of efficiency and the widest range of usefulness.

Advantage of Portability combined with Appearance of Permanency

Not all the cases which the doctor wishes to treat with electricity nor all the cases which he wishes to diagnose by the X-Ray are able to come to his office, therefore some form of portable apparatus is desirable which may be used in any place where ordinary lighting current is available and which may be quickly attached to an ordinary lamp socket. On the other hand he wants something which in his office presents an attractive appearance and which resembles a piece of permanent furniture rather than an over grown battery.

THE CAMPBELL ELECTRIC COMPANY was the first to recognize these needs of the physician for something which should provide him with a simple yet efficient Coil adapted to a variety of uses for general forms of electrical treatment and at the same time adequate to meet the demands for radiographic and radiotherapeutic work. The pioneer among portable coils,—"THE STANDARD",—was given to the profession some eight years ago and at once met with popular favor. Later several currents were added to this coil, a number of improvements in construction adopted and our Model "D" was a worthy successor to our earlier production and was as enthusiasitcally received as its predecessor. From the first we have been studying constantly the possibilities of improvement in construction and addition to the usefulness of our coil until we are able to present our Model "E" as the most perfect and complete piece of High Frequency apparatus yet offered to the profession.

The Campbell the Pioneer

Growth and Evolution of the High-Frequency Coil

THE CAMPBELL MODEL "E"

The Model E Coil

First as to its general appearance and construction. The coil itself with all its working parts is contained in a handsomely finished quartered oak case 22 inches long by 10 inches wide by 8 inches high. It is fitted with a hinged cover which contains receptacles for tube-stand, electrodes and handle, cautery, diagnostic lamp, posts, cords and all accessories with the exception of the X-Ray tube. The entire cover and contents can be instantly separated from the coil which when placed in the cabinet designed for it, loses all appearance of portability and becomes a handsome piece of office furniture.

The Cabinet

The cabinet is also constructed of handsomely polished quartered oak, panelled and fitted with polished nickle trimmings. The top is recessed to contain the coil, it has two drawers for cords, and other small articles, a rack to hold a set of six electrodes and handle, protected by a glass door, and a compartment with a rack for holding two X-Ray tubes and a fluoroscope. It is provided with casters and is easily movable. Its dimensions are, height 34 inches, width 32 inches and depth 19 inches.

Construction, Operation and Uses

So much for external appearance. Now as to the construction of working parts and the uses to which the coil may be put. During the past decade—as new electrical modalities have been tried and proven of value in the field of medicine, a new and separate piece of apparatus has been necessary for production of the same—until—at the present time, to obtain the currents provided by the Campbell Coil, by these separate pieces of apparatus, would require at a conservative estimate an outlay of no less than $350 00, to say nothing of the space occupied and complication of operation and maintainance.

The Campbell Model "E" Coil combines in one compact sensible and elegant piece of apparatus at a cost of only $180.00 all that could otherwise be produced at an investment of from $350.00 up.

Its operation is entirely controlled by two switches and a spark-gap. The switches are of positive snap contact, equipped with ball bearings, move clockwise from left to right, are mounted on a specially insulated base of which we have exclusive control and are provided with plainly marked dials and pointers which clearly indicate the character and volume of the current. The various connections are also clearly marked by black and silver name plates. Of the two switches the one at the left has four points and controls frequency of current while that at the right has seven points and regulates volume. By combination of switches and spark-gap all varieties of frequency and volume may be accurately obtained from the most delicate current of extreme high frequency for use about the sensitive parts of the body up to a heavy X-Ray current of relatively slow condensation and extreme volume.

Description of Working Parts

Protective Devices

Protection to coil, patient and operator are afforded by a number of safety devices. A pilot light serves the double purpose as an indicator when current is entering the primary and also provides sufficient illumination for manipulation of switches when the coil is used in a darkened room. With an exposed spark-gap a dangerous current may be received by accidently touching same when coil is working with full condenser capacity, therefore in Model "D" we adopted the Protected Spark Gap. In our Model "E" we have gone still further, not only safeguarding against possible accidental contact but have also made the spark-gap easily removable for the purpose of cleaning or renewing contact faces.

Pilot Light

Protected Spark-Gap

Removable Spark-Gap

CAPACITY OF COIL AND CURRENTS OBTAINABLE

Factory Test

All coils are thoroughly tested before leaving the factory by means of accurate meters and are subjected to a breakdown test beyond the point at which they are to be operated in regular service. When operated at full capacity Model "E" coil delivers a greater volume of current than is necessary for any practitioner in radiographic work.

CURRENTS

High Frequency

The High Frequency current of Model "E" varies in volume and frequency from a vacuum electrode current of such mildness and rapidity of alternation that the only sensation produced by it is that of grateful

warmth, and which may be painlessly used in the cavities of the body and upon the most sensitive surface, up to one of sufficient volume and of sufficiently slow condensation to satisfactorily excite a heavy X-Ray tube of high resistance, producing X-Rays of enough volume and penetration for deep radiographic work.

Sinusoidal The Sinusoidal is an alternating current of varying potential which is used by means of metal electrodes and which produces a variation of stimulating effects with a wide range of strength according to regulation of switch.

Thermo-Faradic The Thermo-Faradic is so named from the fact that it produces the sensation of a very fine Faradic current together with a sensation of decided heat. It is a true high frequency current and therefore can be applied in large volume and at a voltage varying from one to four thousand. It may be applied by metal or moist electrodes and when so used combines the advantages of heat, moisture and electricity. This current may also be used in connection with the Auto-Pad producing a current of equal measurement with the so called D'Arsonval of coils of other makes.

D'Arsonval The D'Arsonval current from our coil is true to its name and is similar to the Thermo-Faradic but of greater volume and voltage (up to 15,000 volts.) It can be regulated so that it will not cause any effect on the sensory nerves, or so that it will produce an energetic vasomotor constriction and is used in connection with the Auto-Pad not only for general effect but is of extreme value in reducing arterial tension.

Cautery The electric cautery current produced by the CAMPBELL is the superior of that of many cautery-transformers which are sold at a price ranging up to fifty dollars and makes a most useful adjunct to the office equipment of the doctor, whether specialist or general practitioner.

X-Ray From the beginning our coil has been the leader among High-Frequency coils in the production of X-Rays and in the hands of our customers it has done all classes of radiographic work up to and including radiographs of the hip in stout subjects, and that most difficult of all radiographic work,—the location of renal calculi. From the ease with which volume of current and frequency can be controlled, it is the ideal coil for radio-therapy.

Diagnostic Lamp To our latest model has been added a special connection for the attachment of a diagnostic lamp. This connection is on an independent circuit and has a controlling rheostat of its own. We furnish with each coil a diagnostic lamp fitted with reflector guard and tongue depressor. The convenience of this feature will appeal to every physician without further comment.

Tube Stand A small tube stand, the exact counterpart of the floor tube stand, has been provided. It fastens rigidly to the case of the coil, is capable of all adjustments and when not in use takes down and occupies but small space in the cover of the coil.

Carrying Case We also manufacture a carrying case of new design which is amply large to contain tube, electrodes, fluoroscope, cords, plates and other accessories. Special boxes designed for the protection of tube and electrodes are furnished with each tube or set of electrodes and the carrying case has been constructed with special reference to holding these boxes.

Taken as a whole Model "E" is built like a watch—not the pocket clock of the dollar variety but a high-grade twenty-one jewel movement. It combines delicacy, efficiency and durability and whether packed for portable work or in the office as a piece of permanent furniture it has no equal for beauty, mechanical perfection, ease of comprehension and manipulation, variety and efficiency of currents produced, which will in all cases be found true to the name applied and of ample volume for all uses to which they are to be applied.

Prices as hereinafter quoted are net and include careful packing and crating F. O. B. Lynn.

GUARANTEE

We guarantee our Coil against any inherent defect for a period of two years and will during that time repair free of charge any injury received by it from its own operation. We place a limit of two years on the guarantee but as a matter of fact it has been our custom in the past to make good any coil that we have ever built which has become injured by any cause other than entirely outside agency.

PRICE LIST

Coil complete including cords, metal electrodes, cautery handle with cords and one point, diagnostic lamp with cords and attachments and portable tube stand	$180.00
Set of six vacuum electrodes with universal handle	5.00
Floor tube stand	10.00
X-Ray tube (heavy anode) 6 inch diameter	18.00
Fluoroscope	12.00
Cabinet	30.00
No. 6 Outfit, including all in above list	255.00
No. 5 Outfit including all in above list, except cabinet	225.00
Carrying case	5.00
Rotary Converter (necessary only for use on direct current)	35.00

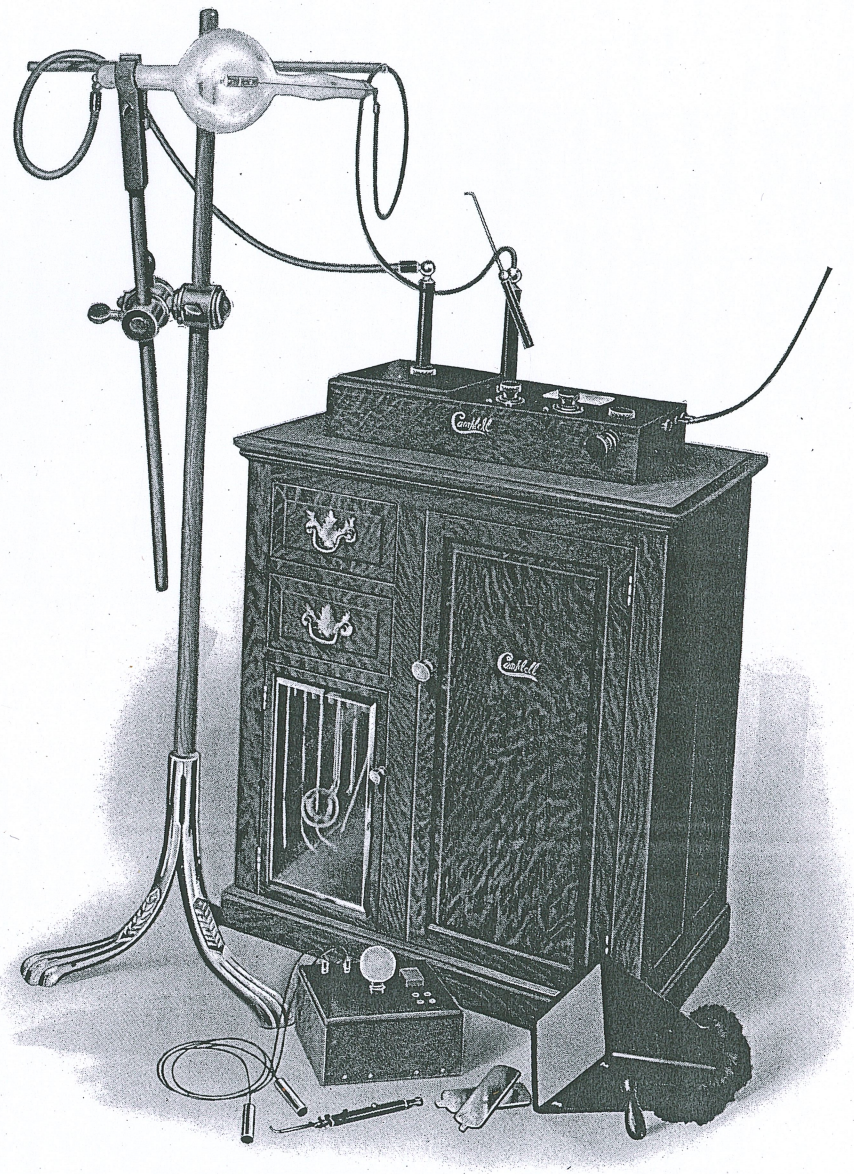
ACCESSORIES SEPARATELY

Heavy cable with swivel attachment	$1.50
Steel tapes, each	.75
Light cord with swivel attachment	.50
Cords for metal electrodes per pair	.75
Cautery outfit complete	1.75
Diagnostic lamp outfit complete	3.50
Replacing diagnostic lamp	.25
Replacing Pilot lamp	.25
Metal hand electrodes (without cords) per pair	.30
Moist electrodes (without cord)	.75
Improved Universal handle for vacuum electrodes	.75
Vacuum Electrodes, ordinary to fit universal handle, each	.75
Vacuum Electrodes Insulated, each	1.50
Auto Pad	10.00
Tube Shield	8.00

warmth, and which may be painlessly used in the cavities of the body

of current and frequency can be controlled, it is the ideal coil for

4415 Uber St
Dr Wiggins
3201



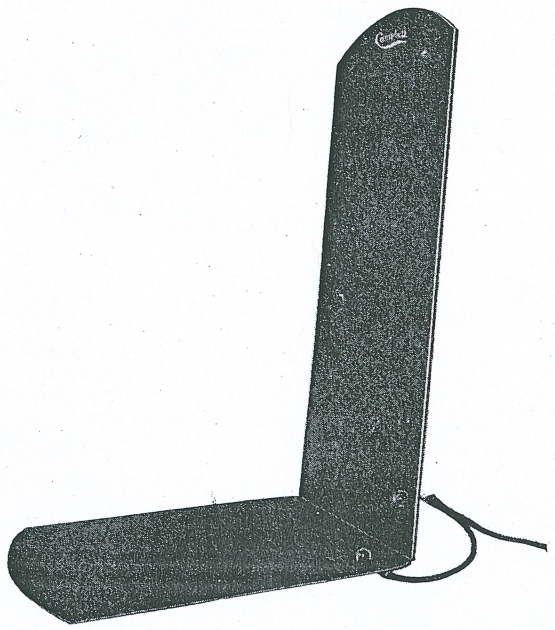
Campbell ELECTRIC CO. LYNN, MASS.

3798

The Campbell "Auto-Pad"

FOR

AUTO CONDENSATION
AUTO CONDUCTION
AUTO INDUCTION



THERE is probably no method of using Electricity therapeutically that is so universally useful and so easy to apply as the D'Arsonval modality of AUTO CONDENSATION. Heretofore the couch used for that purpose, has been rather expensive and cumbersome and the insulation so thick that only the most powerful currents were sufficient to be of practical use.

We have recently brought out a pad for this purpose that we call an "AUTO PAD". While being but little thicker than a book cover, it is so perfectly insulated that a very heavy current of sufficiently high voltage to produce all the therapeutical effects obtained by D'Arsonval, may be used without fear of sparking into the patient.

This pad is in two sections, hinged together and so arranged as to fit any ordinary chair, the patient sitting on one section and leaning against the other. These sections each have a contact to which the cord tips may be connected and a cord is attached to the lower part of the upright section, for the purpose of connecting the two together for AUTO CONDENSATION treatment.

By disconnecting the sections from each other and connecting each to a separate terminal of the THERMO-FARADIC current (marked T. F. on the Model "D" Coil) or to the D'Arsonval attachment, a current similar to AUTO-CONDUCTION may be produced. In this arrangement, the patient receives no current direct from the machine but is in inductive relation to it. As the current surges alternately into two sections of the pad, at the rate of hundreds of thousand of oscillations per second, a powerful current is induced in the patient, measuring as high as 600 to 700 milliamperes when Coil is run full strength.

If the two sections are connected together and a cord run from post "B" (same connection as for Vacum Electrode) to the contact on the upper part of the upright section, the patient placed in position and the current turned on as for High-Frequency treatment, without perceptable sensation the patient will become charged with electricity at a very high voltage. This may be demonstrated by bringing a vacum electrode in proximity to the patient. The effect of this current may be localized by placing a vacuum tube, held in the hand, in contact with the part requiring treatment.

A meter shows 200 to 300 milliamperes with this current.

For want of a better name, we have called this AUTO-INDUCTION.

We believe this pad is a distinct advance in the therapeutical application of the High-Frequency Currents, and will be found of the greatest convenience when it is desired to administer powerful currents as in the treatment of Neurestheniias, Arteriosclerosis, defective Metabolism, Diabetes etc.

PRICE, $10.00.

SINGLE SECTION, $5.00.

Instructions for operating "Auto-Pad"

Place the pad in convenient chair and *have the patient seated with back against the upright section, before turning on the current.*

For AUTO-CONDENSATION, connect the two sections together and carry a cord from the contact near the top of the upright section to one terminal of the D'Arsonval attachment. From the other terminal, the cord is connected to some part of the patient, care should be taken that no clothing intervenes. The hand electrode is a convenient connection, or better the flat block tin electrode placed between the patients hands. Have the switch "C" in the position used for High-Frequency treatment usually the first or second, and the switch "R" in a position to give the desired strength. Careful measurements show that "R" on the second point gives about 400, on the fourth about 600, and on the last, between 800 and 900 Milliamperes.

These figures are reduced about 25% if the lamp is in place. (If the lamp is not in place see that a fuse plug is in.)

About half this current can be obtained from the Thermo-Faradic connections (on model "D" Coil).

500 Milliamperes is ample current to use in ordinary cases and the treatment should be ten to fifteen minutes.

For AUTO-CONDUCTION, disconnect the sections from each other and connect each to a terminal of the D'Arsonval or Thermo-Faradic. Regulate the switches as for AUTO-CONDENSATION.

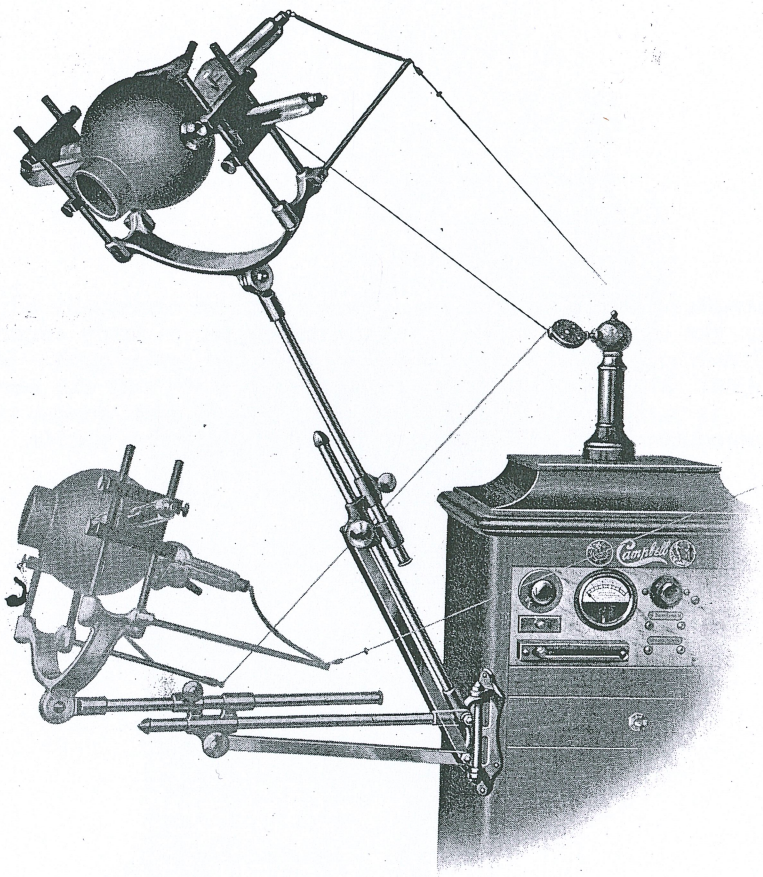
About 25% less current is delivered by this method than by AUTO-CONDENSATION.

For AUTO-INDUCTION, connect the sections to each other and the upright section to the main post (B) of the High-Frequency box. Regulate as for High-Frequency treatment.

CAMPBELL ELECTRIC CO., Lynn, Mass.

Campbell
ELECTRIC CO.
LYNN, MASS.

3703



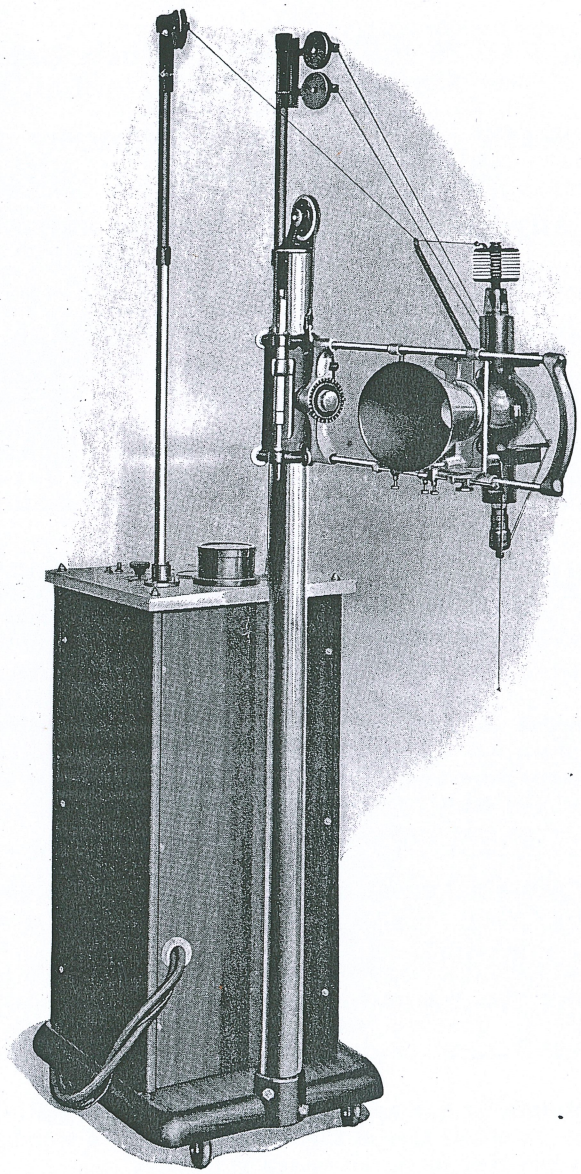
Campbell Dental Bracket Tube Holder

Cat. No. 2006

Dental Bracket Tube Holder, a most convenient and universally adjustable X-ray tube holder made for the use of the dentist. Illustration shows its ready adaptability to positions used in dental radiography, in making films of upper and lower teeth. Is usually hinged to corner of cabinet. May be adjusted to many positions without the necessity of adjusting thumb screws. Is constructed of metal; all parts are of neat design, and finely finished. Readily accommodates 5″, 6″ or 7″ tubes with rubber protective shields.

Campbell Coolidge Clinical X-RAY UNIT

3799



CAMPBELL CLINICAL X-RAY UNIT

U. S. Patents
December 19, 1911; April 22, 1913; August 7, 1917.
Other Patents Pending.

Cat. No. 2084

Campbell Coolidge Clinical X RAY UNIT

CAMPBELL CLINICAL X-RAY UNIT

3-inch gap, 1 to 30 milliamperes; 4-inch gap, 1 to 30 milliamperes; 5-inch gap; 1 to 30 milliamperes.

For nearly every kind of Radiography and Fluoroscopy.
Silent — Always ready — Uniform Results.

(Capacity — Any work within the range of 1 to 30 milliamperes with 3″ to 5″ spark gap)

(See U. S. Army Manual and Eastman or Campbell X-ray Exposure Rule.)

No Physician's, Dentist's nor Hospital's equipment is complete without a Campbell Clinical X-ray Unit.

The greatest hindrance to more universal use of X-ray has been the inability of the average operator to readily master the adjustment of the apparatus in order to obtain satisfactory results.

In the Campbell Coolidge Clinical X-ray Unit the **Current** and **Voltage** (which regulate time of exposure and penetration) are **Fixed Quantities** instantly ready for use by pressure on the switch, and without the annoyance of the noise and adjustments of spark gaps, tube vacuum, etc.

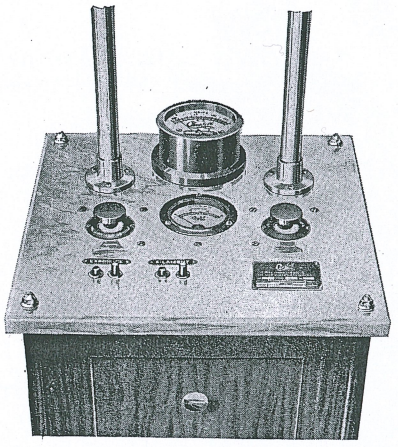
The apparatus is especially constructed with sufficient capacity and suitable regulation for operation of either the ten milliampere or thirty milliampere Coolidge Radiator self-rectifying X-ray tube with a 3″ to 5″ spark gap, which is sufficient to radiograph or fluoroscope any part of the body, thus approaching as nearly as possible all the advantages of the Sure X interrupterless transformer.

One of the principal advantages of this apparatus, which is fully covered by U. S. Patents, is that by slight adjustment of the voltage and current regulators the current may be changed to any volume from 1 to 30 milliamperes at a 3″, 4″ or 5″ gap, always maintaining the selected voltage at the tube terminals regardless of the load which in the ordinary apparatus would cause fluctuation in the penetrative value of the X-rays, uniform maintenance of which is so necessary in order to establish the exposure technique which in results marks the difference between the expert Roentgenologist and the one who is rated as of mediocre attainment.

This equipment in connection with Eastman Dupli-Tized films and double intensifying screens, one on either side of the film, will produce wonderfully rapid work. For Dental and the majority of other work, no screen is needed.

The entire apparatus is one complete unit easily moved about and is instantly ready for use by connection to the ordinary electric light circuit for use with ten milliamperes in the tube, but for use of the thirty milliampere tube it is advisable to connect to a special circuit of No. 6 or 8 wire on account of fire underwriters' regulations relative to carrying capacities of wiring circuits.

The whole outfit is the evolution of many years of combined research work, and is a model of efficiency, beauty and durability such only as this company of twenty years' experience in the manufacture of all kinds of X-ray apparatus for the physician, dentist and hospital will offer to the profession.



The Control Board

SPECIFICATIONS

Cabinet. Fireproof, entirely of metal, beautifully finished, with white marble top, polished nickel trimmed. All parts of cabinet are interchangeable so that in case of injury a new panel, corner, base, or marble top may be quickly replaced without expense of an entire cabinet. This method of construction allows the ready removal of all four side panels, thus leaving all internal parts of the apparatus easily accessible, very rigid, and absolutely fireproof.

Equipped with ball-bearing casters attached to the cast base.

The regular finish is Mahogany.

Control Board. White marble equipped with voltmeter; milliamperemeter; spark regulator; filament regulator; auto transformer control; high tension masts with grounded metal casings; filament switch and main switch.

High Tension Transformer. Secondary 65,000 volts. Closed core, oil insulation, metal tank Sufficient capacity to deliver 1 to 30 milliamperes to the X-ray tube with 3″ to 5″ gap.

Filament Transformer. A separate transformer mounted in same case with high tension transformer. Oil insulated.

Auto Transformer. Compensates for difference in line voltage.

Control. Voltage and volume are simultaneously regulated by turning a regulator handle located on Control Board. This method of control compensates for rise and fall in line voltage and consequent fluctuation of penetrative value of the X-rays. Filament current may also be very finely controlled by turning a regulator handle on front panel of cabinet. Auto Transformer is adjusted by Voltage Regulator on control board. By adjusting this regulator until the voltmeter reads 110 volts, the spark gap desired is assured with any load, if line capacity is sufficient. Lack of line capacity may be quickly determined by noting whether or not voltmeter indicates drop in line voltage when load is turned on.

Reels. For Connecting Wires. Self-winding, mounted on high tension masts.

Foot Switch. Quick make and break prevent arcing and burning of contacts.

Current Required. Operates on alternating current of from 100 to 120 volts, 40 to 60 cycles, 6 to 35 amperes, according to current used in tube. Also on direct current by addition f rotary converter mounted in bottom of cabinet for the ten milliampere tube. For the thirty illiampere tube, it is necessary to mount the converter, on account of its large size, separate m the cabinet.

Tube Stand. Counterweighted. Wide range of adjustment of tube with stereoscopic shift, vertical and horizontal. Highly finished in polished nickel plate. Mounted in heavy cast base of cabinet.

Protection from X-ray. The standard and approved Coolidge special heavy glass tube shield completely enclosing tube. Made of lead glass equivalent in protection to approximately 1/16″ metallic lead.

Protection to Apparatus, Patients and Operator. No exposed current carrying parts on Control Board. Mica High Tension Masts with Metal casings grounded through resistance. Standard approved cutout in bottom section of cabinet with cartridge fuses.

Tube. Self-rectifying Coolidge Radiator type, either the ten or thirty milliampere.

Patents. This apparatus is protected by U. S. patents issued December 19, 1911, April 22, 1912, and August 7, 1917. Other patents are pending.

OUTFIT

Coil. A. C., 110 volt, 60 cycles, including cabinet, transformers, regulators, meters, etc. Catalog No. 2084.
Tube Stand. Counterweighted. Stereoscopic. Catalog No. 1255.
Foot Switch. Carbon make and break. Catalog No. 1037.
Glass Shield. Lead protective. Bedside type. Catalog No. 1260.
Coolidge Tube. Bedside Radiator type, either the ten or thirty milliampere.

Catalog No. 1270.

Outfit complete, boxed ready for shipment F. O. B. Lynn .....
Extra for Automatic Time Controller (times exposure and breaks circuit). Catalog No. 2081 .....
Extra for use on 110 volts, D. C. (10 milliamperes through tube) .....
Extra for use on 110 volts, D. C. (6 milliamperes through tube) .....

There is also a Campbell Coolidge Dental Unit which is designed for Dental X-ray exclusively. It delivers 10 milliamperes at only a 3″ spark gap, which is ideal penetration for the teeth, but not sufficient for sinus and other deep work.

There is a Campbell X-ray or Electrotherapeutic outfit for every known field of use.

Send for complete catalog.

Campbell Apparatus sold by Reliable Dealers, supported by Factory Service Men.

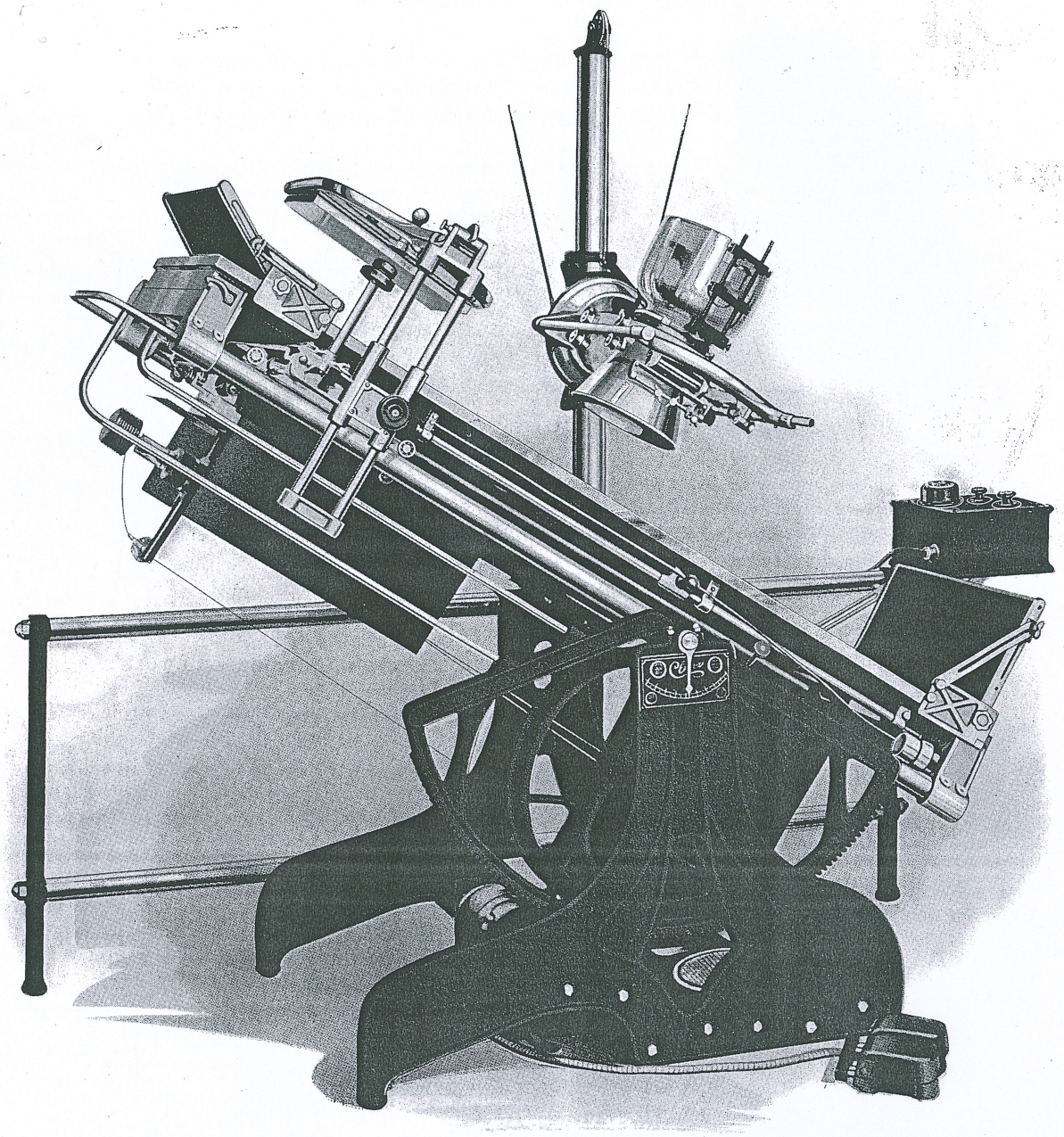
ACCESSORIES

The following accessories are suggested for selection to make a more complete outfit.

Hand Fluoroscope — Size 8″ x 10″ with Lead Glass. Catalog No. 1039 .....
Plate Changing Tunnel — Size 12″ x 12″. Catalog No. 1064 .....
Intensifying Screen and Cassette — Size 10″ x 12″. Catalog No. 1060 .....
U. S. Army Manual. Catalog No. 1150 .....
Eastman X-Ray Exposure Rule .....
Lead Lined Box for films and plates of all sizes. Catalog No. 1083 .....
Dark Room Supplies, Films, Plates, etc. (See price list).

TRADE MARK

Clinix



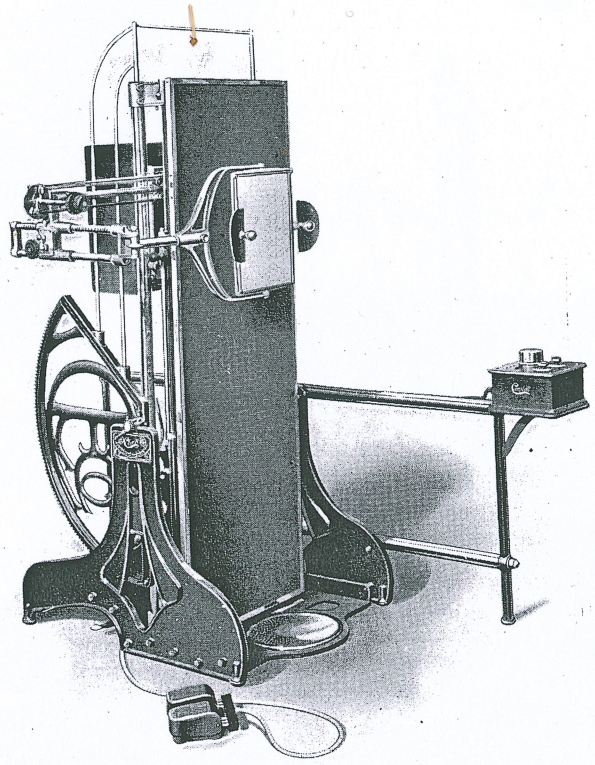
Campbell "Clinix" X-ray Plant

Tube Tilt Table. Motor Driven. Transformer attached to under side of table.
Also furnished with Transformer mounted on top of Tube Stand.
Both High Tension Transformers operated by the one Auto Transformer Control Case.
1 to 30 Milliamperes, 2 to 5-inch Spark Gap.

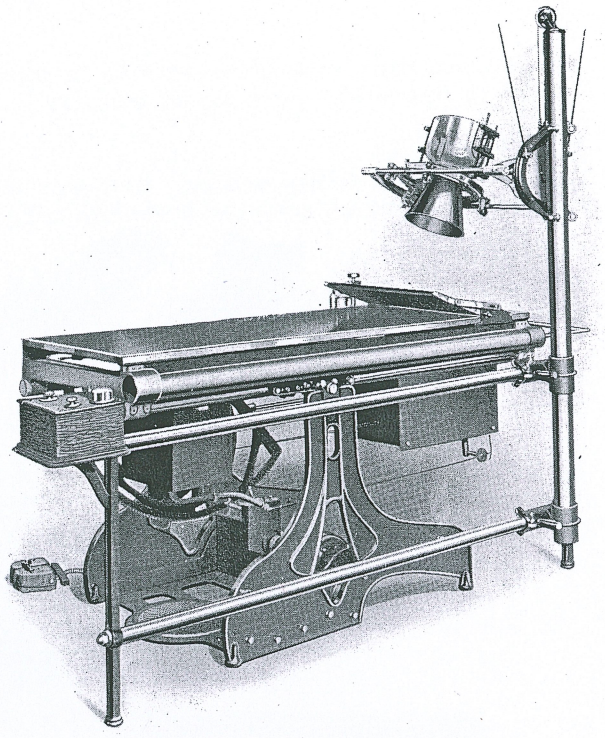
U. S. Patents
December 19, 1911; April 22, 1913; February 29, 1916;
August 7, 1917. Foreign Patents.
Other Patents Pending.

Cat. No. 2087

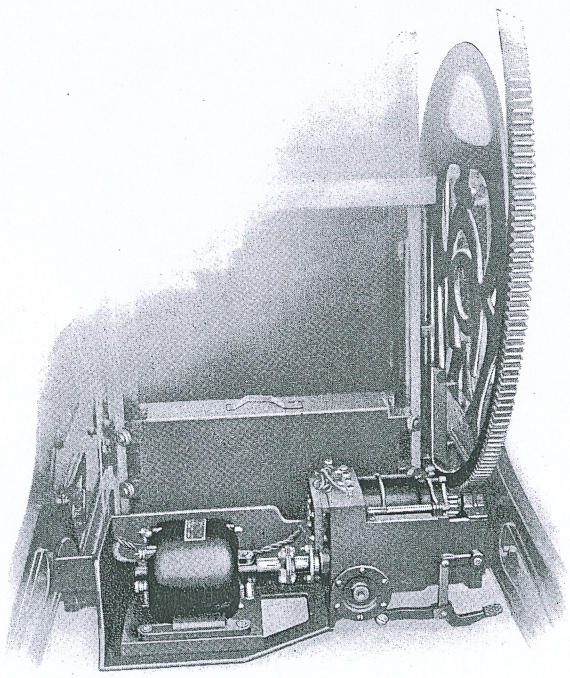
Clinix



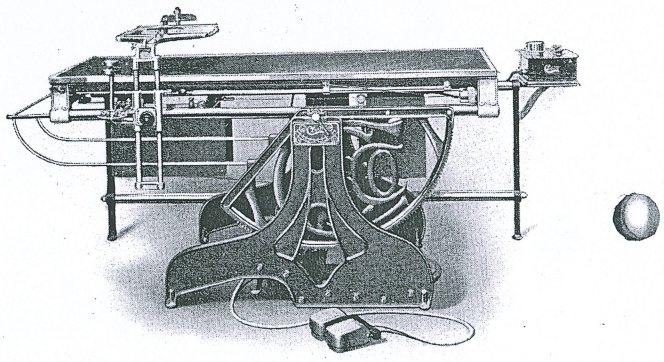
CLINIX IN VERTICAL POSITION



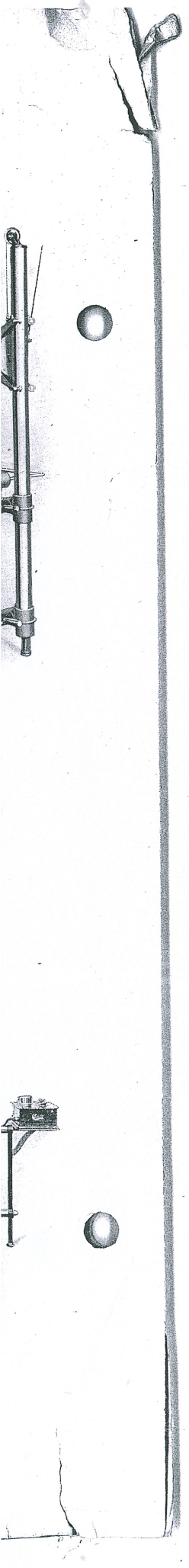
CLINIX IN HORIZONTAL POSITION
Rear view showing Transformer and Connections



CLINIX MOTOR DRIVE AND TRANSMISSION



CLINIX IN HORIZONTAL POSITION
Operating Side



TRANSFORMER TYPE TUBE TILT TABLE

Clinix X-Ray Plant

Vertical - Horizontal - Angular - Stereo Radiography
Fluoroscopy and Orthodiagraphy—Motor Driven
Self-Excited—1 to 30 Milliamperes—2 to 5-Inch Gap

The Clinix unit is the latest development of the Tube Tilt Table Both are original inventions of Mr. Charles E. Campbell. They have been pronounced by leading Roentgenologists as the greatest attainment in the development of X-ray apparatus and are rapidly revolutionizing X-ray technique.

The Clinix is an X-ray plant, all but the illuminators and dark room. It is a Self Excited, Motor Driven, Stereo Tube Tilt Table with a Combination Screen and Cassette Holder by which radiography as well as fluoroscopy can be done with the tube under the table. The transformer and controls are attached to and form part of the table, thus eliminating the unsightly, annoying and dangerous overhead trolley lines and high tension switch.

The patient when once placed on the Clinix remains there until a complete X-ray examination has been made in the Horizontal, Angular, Trendelenburg and Vertical positions, including fluoroscopy, radiography and orthodiagraphy.

The motor drive is of indescribable value in fluoroscopic examination of the gastrointestinal tract, in accordance with the latest technique for diagnosis of adhesions, the patient being slowly tipped from the vertical to the horizontal and Trendelenburg positions while the operator has his hands free and both the operator and patient are relieved of violent physical exertion.

The transformer attached underneath eliminates the overhead trolley and makes head of the Clinix table accessible.

The Clinix combines in one compact, convenient piece of apparatus of handsome design all the advantages of more than a score of separate pieces of cumbersome and expensive apparatus.

To relocate or rearrange the apparatus of the X-ray laboratory, just move the Clinix, that's all.

The saving in plates and films alone, by accurate localization with floroscopic screen before making radiograph, thus allowing use of the smallest plates or films, would pay a fair return on the investment in entire outfit.

In connection with Eastman Dupli-Tized films and double intensifying screen will do all kinds of radiography.

SPECIFICATIONS.

Dimensions (overall). Length 6′ 8″—Width 32″ (add 3″ for stand track), Height 36″ to table top.

Construction. Entirely of metal except where electrical insulation is needed; a wood top, head and foot boards.

Top. Wood veneer, of careful selection, highest grade and finish. Tested by X-ray to insure a clear examination field. Opens on piano hinge for accessibility of under mechanism.

Examination Field. Extraordinarily large. Size, length 44 inches, width 22 inches. Enough for examination of head to pelvis and shoulder to shoulder without moving patient.

Tube Carriage. Arranged for Coolidge Radiator Bedside Tube (10 or 30 Milliampere) and black Lead Glass Protective Shield enclosed in Bakelite insulation. Mounted on ball bearings. Counterweight runs on ball bearings inside steel tubing on rear side of table. This construction, together with elimination of the heretofore necessary heavy sheet lead covered tube box, makes a wonderfully light weight and wide range tube carriage which moves at the slightest touch.

Stereo Shift. Locks are provided for stereo shift of tube carriage in both directions so that stereo radiographs may be made with the table tube.

Diaphragms. Lead covered, opening enough to cover a 14″ x 17″ screen or plate at a target distance of 21½ inches, adjustable independently or together to horizontal, vertical or square opening.

Filter. Groove under diaphragm opening for insertion of aluminum or other filtering material.

Automatic Plate Changer. For stereo-radiographs with tube above or in front of table. Accommodates up to 14″ x 17″ plates in either direction. Operates with table in

either horizontal or vertical positions. Provided with air valve speed adjustment which requires no special adjustment for changing from horizontal to vertical shift. Quickly removable from end of table. A lead field cover is provided for insertion at upper end of table when this plate changer is used and can be put in place while patient is on table. Lower end of table is protected by a permanent sheet lead field cover attached to the iron frame.

Fluoroscopic Screen and Cassette Holder. A combination holder of aluminum with a fluoroscopic screen size 11″ x 14″ protected by lead glass, on the other side of which a Cassette size 11″ x 14″ may be quickly attached. Swivels so that plate or film may be protected from X-ray by the lead glass. Holder can be quickly changed so that the fourteen-inch dimension of screen or plate may be used laterally or longitudinally. Adjustable to any distance between 15 inches and 31 inches from target of tube to screen or plate. May be locked to maintain position irrespective of angle of table. Detachable, or may be swung and locked away from table top. Has universal movement so that screen may be tilted at any angle desired, with adjustable friction to maintain position.

Cassettes. Two 17″ x 17″ aluminum cassettes graduated to adapt to smaller plates. Inserted from side of table while in horizontal, angular or vertical position.

Head and Foot Boards. A head board and foot board are both provided as regular equipment, exactly alike in construction and interchangeable. Adjustable as to distance from head or foot of table. Also adjustable as to angle with relation to surface of table so that either may be used as a seat, stand, shoulder or head rest. May be tilted as a sinus block or at other angles for support of various parts of the body. Quickly adjusted and strong enough to support entire weight of a heavy patient.

Turn Table. Built as a part of the frame, operates on steel ball bearings and so constructed that patient may be easily rotated during fluoroscopic examination in the vertical position.

Graduations. No piece of X-ray apparatus was ever more thoroughly worked out and perfected in the details for convenience of the operator than the Clinix, as is evidenced in part by the graduations of each and every part where desirable to know angle or distance as follows:—Angle of table by degrees from Trendelenburg to vertical,—distance of target to screen in inches,—longitudinal travel of tube in inches,—lateral travel of tube in inches,—opening of diaphragms to cover plates or films of different sizes at various distances.

Luminous Indicators. To facilitate operation in the dark the handles which control movement of screen, diaphragms, and filament regulator are provided with luminous dials. The first five milliampere indications of milliammeters are also luminous.

Motor Drive. Reversible motor of the repulsion type in connection with a transmission, similar to that used in an automobile, geared to a large segment gear. Operates table with patient, up or down by pressure on foot switch. Limit switches stop the motor automatically at the extreme Trendelenburg and vertical positions. A pedal for foot release of motor transmission enables manual adjustment of angle of table if quicker adjustment is needed than motor provides (maximum travel is accomplished by motor in 70 seconds). Automatically locks when pedal is released.

Counter Balance. Table top is so well balanced by distribution of the weight of transformer and by travelling counterweight that it may be tilted by one finger.

Guard Rail. Operating side and head of table are provided with a guard rail to prevent accidental contact with tube connections. Rear side of table is protected by tracks for tube stand and lower end by distance and the fact that secondary terminals are mounted on side of transformer facing toward head of table.

Transformer (High Tension). Secondary 65,000 volts. Closed core, non-fluid insulation, hardwood locked corner case. Sufficient capacity to deliver 1 to 30 milliamperes to X-ray tube with 2″ to 5″ spark gap.

Transformer (Filament). In same case with high tension transformer.

Controls. Control Case attached to end of table, provided with—auto transformer, voltmeter, milliammeter, auto transformer switch (adjusts line voltage to that for which apparatus is made) main switch, double throw tube switch and potential compensator switch (provides 3 different current changes and simultaneously maintains voltage or penetrative value of the X-ray). The high tension transformer attached to table is provided with a milliammeter and a filament regulator conveniently visible and operable from front of table independent of auto-transformer control case.

Main switch is operated by a pull cord extending entire length of table so that current may be turned on or off at any position, during examination.

Reels. Self-winding. Connect from transformer secondary terminals direct to X-ray tube. Take the place of overhead trolley lines with their attendant inconvenience and danger.

Foot Switches. Positive, quick-action, prevents arcing and burning of contacts.

Current Required. Operates on alternating current of 100 to 120 volts, 50 to 60 cycle, 6 to 35 amperes, according to current used in tube. Also on direct current by addition of a rotary converter and transformer which may be installed in another room. To operate tube with ten milliamperes requires a one kilowatt rotary converter. Thirty milliamperes requires a four kilowatt converter.

Finish. The finish of frame and top is mahogany. Other parts, polished aluminum and nickel plate.

Tube Stand No. 6. For radiography and therapy with tube above table. (**When using tube in stand a separate high tension transformer must be used.**) The No. 6 Tube Stand possesses the following exclusive features in addition to all the usual advantages. Entirely controlled from operating side of table by a single lock without reaching over. Overhang 26 inches, allows radiography of either shoulder without moving patient. Friction disc holds tube safely at any angle. Stereo shift and tilt at any point of the circumference. Slight underhang. Automatic safety lock in case cable breaks. High grade ball bearings throughout. The best of machine work. Furnished with lead glass tube shield and diaphragm, complete, ready to attach to tracks of **Clinix** table.

Extra High Tension Transformer for Tube Stand, 1 to 30 milliamperes, 3″ to 5″ gap, with attachments for fastening to No. 6 Tube Stand, to operate tube in stand. Travels with stand. Equipped with high-tension terminals, cord reels, filament regulator and connections to Control Case. Operated by same control which operates the table tube. Double throw switch on Control Case makes it impossible to accidentally turn current on both tubes at same time. (Sold only for use with "Clinix" Table.)

Tube. Self-rectifying, Coolidge Radiator Bedside Type, ten or thirty milliampere.

Patents. This apparatus is protected by United States patents, issued Dec. 19, 1911, April 22, 1912, Feb. 29, 1916 and Aug. 7, 1917. Also by foreign patents. Other patents pending.

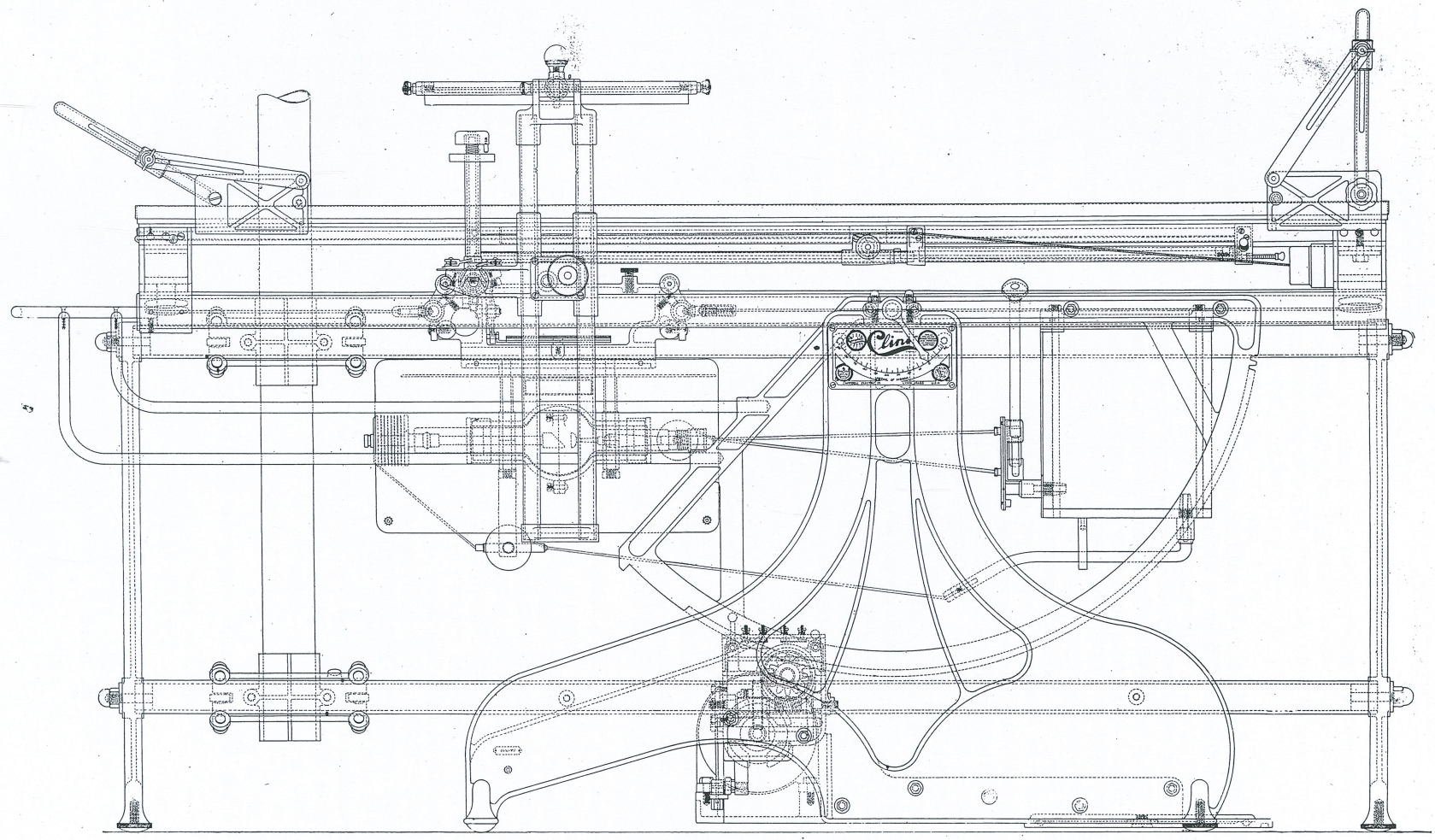
PRICES

	Catalog Number Complete Assembly	PRICE Per Item	PRICE Total Complete Assembly
Campbell Clinix Tube Tilt Table with terminals at upper end arranged to excite tube under table from an interrupterless or other outside transformer—with Automatic Plate Changer, 11 x 14 Fluoroscopic Screen and Holder, 2—17 x 17 Cassettes, Head and Foot Boards, Cord Reels, etc., boxed ready for shipment. F. O. B. Detroit	2095	$1550.00	$1550.00
Motor Drive and Foot Switches (Cat. 2108)	2094	100.00	1650.00
High Tension Transformer attached under table (Cat. 2111, $450) with Control Case (Cat. 2112, $100)	2086	550.00	2200.00
Number 6 Tube Stand (Cat. 1013)	2087	300.00	2500.00
Extra High Tension Transformer for Tube Stand with mountings (Cat. 2093)	2109	450.00	2950.00
Two Coolidge Radiator X-ray Tubes (Cat 1270, $125 each)	2110	250.00	3200.00
Complete Clinix X-ray Plant (Catalog No. 2110) Code word Clinix	**2110**	**$3200.00**	**$3200.00**

NOTE:—This latter combination leaves nothing to be desired except the dark room equipment, illuminators and a few small accessories.

If supply is NOT alternating current of 100 to 120 Volt, 50 to 60 Cycle, one of the following must be used. May be installed in separate room or in basement if desired.

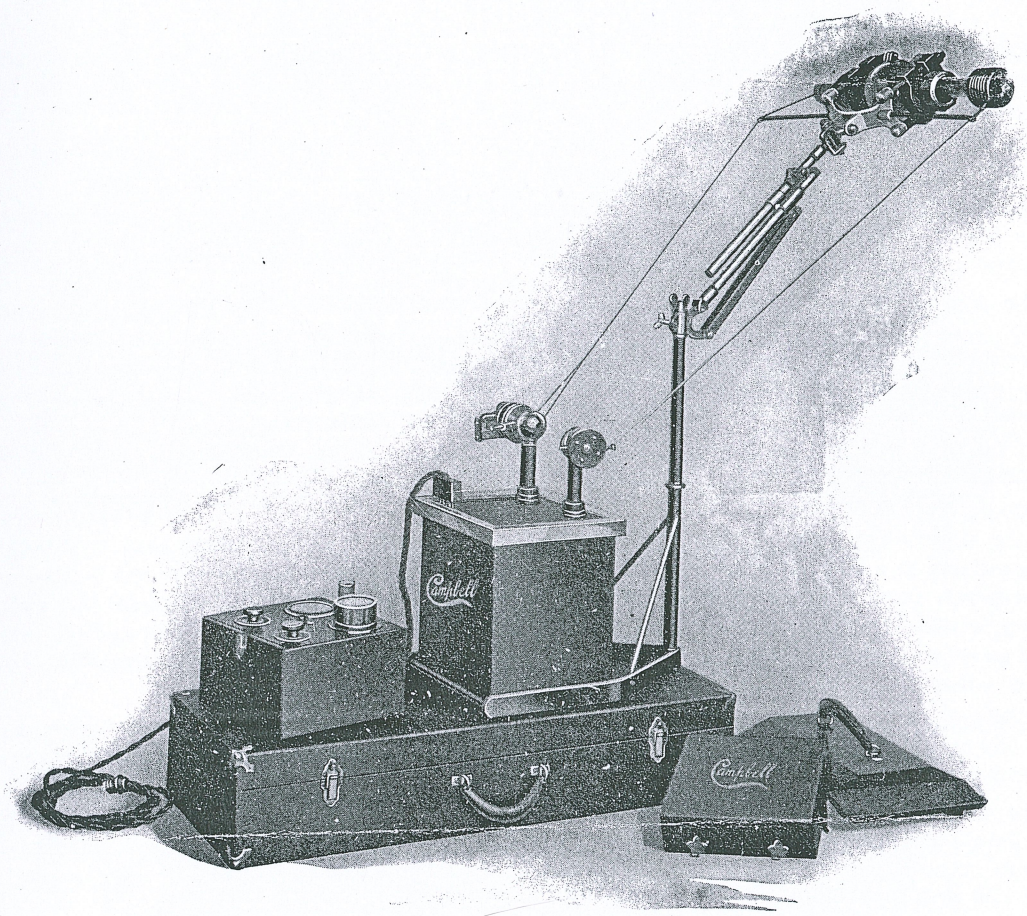
Cat. No. 1562 *Rotary Converter and Transformer for Direct Current,* (10 *milliamperes in Tube*) 110 *Volt* $225.00
Cat. No. 2115 *Rotary Converter and Transformer for Direct Current,* (10 *milliamperes in Tube*) 220 *Volt* 275.00
Cat. No. 2113 *Rotary Converter and Transformer for Direct Current,* 4 *Kilowatt* (30 *milliamperes in Tube*) 110 *or* 220 *Volt* 525.00
Cat. No. 2114 *Step-Down Transformer* 220 *Volt or* 440 *Volt,* 60 *Cycle* 75.00



CAMPBELL "CLINIX" X-RAY PLANT

Line drawing, illustrating in detail, mechanical construction.

Campbell Coolidge
BEDSIDE X RAY UNIT



CAMPBELL CLINETTE X-RAY UNIT

Portable Type for Bedside Use

Manufactured by

CAMPBELL ELECTRIC MFG. CO.

LYNN, MASSACHUSETTS

U. S. Patents:
Dec. 19, 1911; April 22, 1913; August 7, 1917.
Other Patents Pending.

Cat. No. 12145

Campbell Clinette X-Ray Unit Portable Type

3 to 5-inch gap, 0 to 30 milliamperes.

Capacity: — Superb radiography of any part of the body.
Average exposure time, one second. The best of fluoroscopy.
Designed for bedside use at home of the patient.

Noted Roentgenologists using the Campbell Clinette portable unit marvel at the wonderful radiographs produced, which average much better than the work generally produced by the largest and most powerful apparatus.

Transformer may be placed on floor beside bed and tube stand raised and extended to opposite side of bed.

The whole outfit may be carried, set up ready for use, in an automobile. The exposure may be made and outfit removed all in the average time which would be required to only assemble and connect the ordinary portable outfit.

The additional capacity provided in the Campbell Clinette (0 to 30 milliamperes) over that of other portables on the market, makes it possible to do quicker and better work, also insures against failure in those occasional, but so important, very difficult cases, only one of which either directly or indirectly might be worth the cost of the entire outfit. When desired, only ten milliamperes may be used or by simple adjustment of the regulators, various combinations between 0 to 30 milliamperes and 3 to 5-inch gap may readily be obtained. Sufficient capacity to radiograph or fluoroscope any part of the body.

One of the principal advantages of this apparatus, which is fully covered by U. S. Patents is that by slight adjustment of the voltage and current regulators the current may be changed to various volume at a 3, 4 or 5-inch gap in ¼″ steps, always maintaining the selected voltage at the tube terminals regardless of the load, which is so necessary in order to establish the exposure technique which in results marks the difference between the expert Roentgenologist and the one who is rated as of mediocre attainment. For instance, five, ten, or twenty milliamperes may be obtained at *either* a three, four or five-inch gap.

This equipment in connection with Eastman Dupli-Tized films and double intensifying screens, one on either side of the film, will produce wonderfully rapid work. For Dental and the majority of other work, no screen is needed.

The whole outfit is the evolution of many years of combined research work, and is a model of efficiency, beauty and durability such only as this company of twenty-years' experience in the manufacture of all kinds of X-Ray apparatus for the physician, dentist and hospital will offer to the profession.

SPECIFICATION

Transformer A. C. 110 volt, 60 Cycle, including self-winding cord reels, filament, posts, handle, cover, connecting cords, etc., Cat. No. 12140, including carrying case, Cat. No. 12142.

Control. Separate Auto Transformer Control with instruments, connecting cord, rheostat, etc., Cat. No. 12106.

Tube Holder. Adjustable bracket, portable type, with base frame, extension rod, tube clamps, cord spreaders, etc., Cat. No. 12141.

Foot Switch. Enclosed type, Cat. No. 12107.

Tube Shield. Lead glass protective, bedside type, Cat. No. 12125.

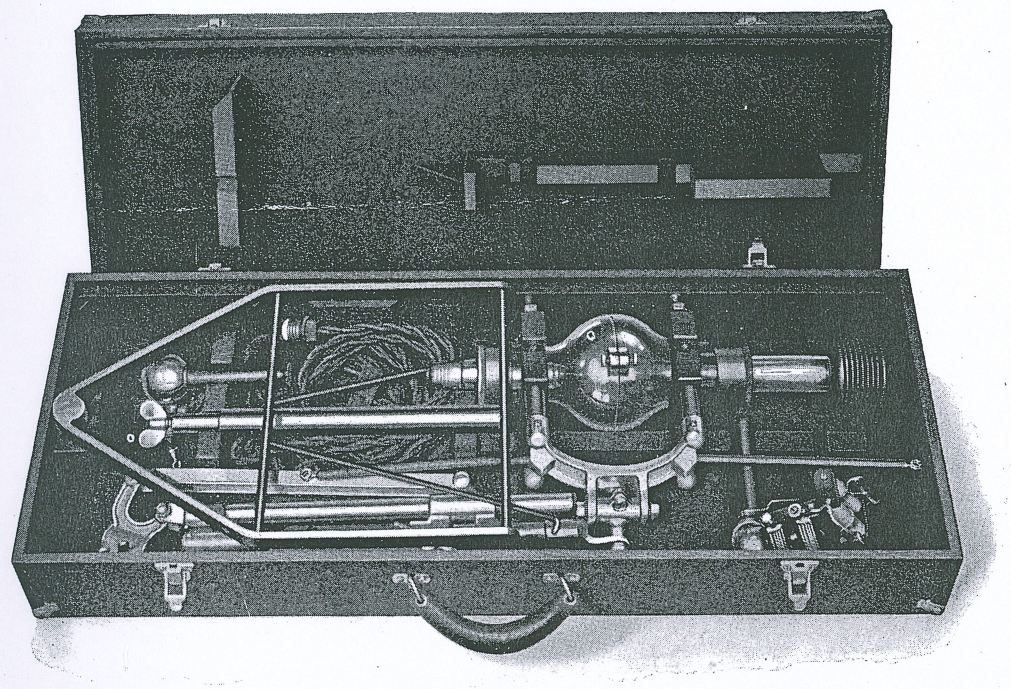
X-Ray Tube. Radiator bedside type, Cat. No. 12112.

Portable Rotary Converter for use on 110 Volt Direct Current (10 milliamperes in tube), Cat. No. 12121.

Campbell Coolidge
BEDSIDE X RAY UNIT

Campbell Clinette X-Ray Unit

PORTABLE
POWERFUL
PRACTICAL



CLINETTE
CARRYING
CASE
PACKED

CAMPBELL
CLINETTE
COIL
CONTROL
AND
CARRYING
CASE
PORTABLE

Form Clinet 15M-7-1
Campbell Electric Manufacturing Company
Lynn, Massachusetts

Campbell
ELECTRIC CO.
LYNN, MASS.

Essentials To Successful Roentgenology

See that films are loaded and developed in an absolutely light-proof room, by a safe ruby light. Without screens, for better detail of soft parts, multiply the following screen exposures by 5.

Dense black films or dark gray all over, indicate over exposure or over penetration.

Light, thin, transparent films indicate under exposure or under penetration.

Films showing rich black and white detail are produced by using the lowest spark gap which will provide sufficient penetration for the part to be radiographed — good light-proof dark room — safe ruby light — fresh unexposed films — fresh cool developer and fixer and washing for at least twenty minutes in cool clean water. Cones, diaphragms, proper angles and immobility of subject also contribute to the making of good radiographs.

In placing film under patient, have center of target of tube opposite center of film, with part to be radiographed directly in path of the central ray. In using double intensifying screens, place film between the screens (in dark room) in light tight cassette or other exposure holder, coated sides of screens toward film.

Note: — *Unexposed films must be kept in properly constructed lead-lined box, heavy iron safe or other X-Ray proof protector which is absolutely certain to be closed during excitation of the X-Ray tube if only for one brief moment, as one flash of X-Ray could completely ruin a whole stock of sensitive films.*

Exposure Scale for use with Campbell Clinix, Clinical, Clinette and Portex X-Ray Units.

Based on 150 lb. normal weight. Develop 5 minutes at 65 degrees F.

Part	Tube Distance Target to Film	Spark Gap Inches	Exposure Time Seconds — Milliamperes 10	20	30	Intensifying Screens	Film	Special
Fingers, Toes	20	3	2	1	¾	None	Dupli-tized	
Teeth	20	4	4	2	1½	None	Dental (Fast)	
Hand	20	3	4	2	1½	None	Dupli-tized	
Wrist	20	4	3	1½	1	None	Dupli-tized	
Ankle	20	4	1½	¾	½	Double	Dupli-tized	
Chest	28	4	4	2	1½	None	Dupli-tized	
Tibia, Fibula	20	4	5½	2¾	2	None	Dupli-tized	
Elbow	20	4	1½	¾	½	Double	Dupli-tized	
Knee	20	4	1½	¾	½	Double	Dupli-tized	
Shoulder	20	4	1½	¾	½	Double	Dupli-tized	
Gastro-Intestinal	26	5	2	1	¾	Double	Dupli-tized	B. S. Meal
Cervical Spine	20	4	2	1	¾	Double	Dupli-tized	
Head (lateral)	20	4	4	2	1½	Double	Dupli-tized	
Kidney, Gall-Bladder		4	4	2	1½	Double	Dupli-tized	Compression
Hip, Pelvis	20	4	5½	2¾	2	Double	Dupli-tized	
Lumbar Spine						Double	Dupli-tized	
Lateral Spine	28	5	8	4	3	Double	Dupli-tized	Angle
Head (posterior-anterior)	20	5	5½	3	2			

The 20 Milliampere Technique has proven most uniformly satisfactory.
Secondary radiation is comparatively slight and radiographs consequently clear.

Fluoroscopy — This work is done with a current of 3 to 5 milliamperes with a penetration equivalent to a 3″ to 5″ spark gap according to part and condition to be studied. The room must be absolutely dark. The light from the filament of Coolidge tube must be excluded. One should remain in the darkened room for at least 15 minutes for sensitizing the retina before attempting to make fluoroscopic examination, otherwise the object to be examined may not even be visible. If any light must be used temporarily, it should be a dim ruby light. A sensitive fluoroscopic screen should be used with proper lead glass, sheet lead or other protection. In this, as in all X-Ray work, the greatest care should be used against over exposure of patient, operator or attendants, as well as persons in adjoining rooms.

CAMPBELL ELECTRIC MFG. CO.
LYNN, MASSACHUSETTS